THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the above-referenced application.

1-13. (Cancelled)

14. (Previously Presented) A receiver comprising:

a bank of correlators for receiving a received signal that is a linear combination of a set of non-orthonormal signature signals that has undergone some distortion; and

a set of correlating signals; wherein

the bank of correlators cross-correlates the received signal with ~~a~~ the set of correlating signals to produce a vector output, and

the set of correlating signals is orthogonal and is determined by minimizing the least-squares error between the set of correlating signals and the set of signature signals.

15. (Cancelled)

16. (Previously Presented) A receiver comprising:

a bank of correlators for receiving a received signal that is a linear combination of a set of non-orthonormal signature signals that has undergone some distortion; and

a set of correlating signals; wherein

the bank of correlators cross-correlates the received signal with the set of correlating signals to produce a vector output, and

the set of correlating signals is orthogonal and is determined by minimizing the least-squares error between the set of correlating signals and a set of decorrelator signals $v_m(t)$ corresponding to $\mathbf{V} = \mathbf{S}(\mathbf{S}^*\mathbf{S})^{-1}$ where $\mathbf{S}$ is the matrix corresponding to the signature signals.

17. (Previously Presented) A receiver comprising:

a bank of correlators for receiving a received signal that is a linear combination of a set of signature signals that has undergone some distortion; and

a set of correlating signals; wherein

the bank of correlators cross-correlates the received signal with the set of correlating signals to produce a vector output, and

the set of correlating signals is a set of geometrically uniform signals and is determined by minimizing the least-squares error between the set of correlating signals and the set of signature signals.

18-19. (Cancelled)

20. (Previously Presented) The receiver of claim **14**, wherein the set of correlating signals is a set of projected orthogonal signals.

21-22. (Cancelled)

23. (Previously Presented) The receiver of claim **17**, wherein the set of correlating signals is a set of projected geometrically uniform signals.

24-36. (Cancelled)

37. (Previously Presented) A method for processing signals in a multi-signature system comprising the steps of:

receiving a signal that is a linear combination of a set of non-orthonormal signature signals that has undergone some distortion;

cross-correlating the received signals with a set of correlating signals; and

determining the set of correlating signals by requiring the correlating signals to be orthogonal and minimizing a least-squares-error between the signature signals and the set of correlating signals.

38-39. (Cancelled)

40. (Previously Presented) A method for processing signals in a multi-signature system comprising the steps of:

receiving a signal that is a linear combination of a set of signature signals that has undergone some distortion;

cross-correlating the received signals with a set of correlating signals; and

determining the set of correlating signals by requiring the correlating signals to be

geometrically uniform and minimizing a least-squares-error between the signature signals and the set of correlating signals.

41. (Cancelled)

42. (Previously Presented) A method for processing signals in a multi-signature system comprising the steps of:

receiving a signal that is a linear combination of a set of signature signals that has undergone some distortion;

cross-correlating the received signals with a set of correlating signals; and

determining the set of correlating signals by requiring the correlating signals to be orthogonal and minimizing a least-squares-error between the set of correlating signals and a set of decorrelator signals $v_m(t)$ corresponding to $\mathbf{V} = \mathbf{S}(\mathbf{S}^*\mathbf{S})^{-1}$ where **S** is the matrix corresponding to the signature signals.

43. (Previously Presented) The method of claim **37,** wherein the set of correlating signals is a set of projected orthogonal signals.

44-45. (Cancelled)

46. (Previously Presented) The method of claim **40**, wherein the set of signals is a set of projected geometrically uniform signals.

47-55. (Cancelled)